

In the Claims

Claims 1-19 are pending in the application.

Claims 1-7, 9 and 11-13 are rejected.

Claims 8, 10 and 14-19 are objected to.

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Explanation of Amendments in the Claims:

1. (currently amended) An engine device comprising:

a wheel supported for rotation in a working direction about a generally horizontal wheel axis, defining a rising side and a falling side of the wheel as the wheel rotates;

a plurality of pockets at spaced positions about a periphery of the wheel;

a tank surrounding the wheel and arranged for containing a fluid about the wheel;

the tank being supported for rotation about the wheel axis;

means a gas introducing mechanism arranged to introduce gas into the pockets on the rising side of the wheel;

means a gas removal mechanism arranged to remove gas from the pockets on the falling side of the wheel;

and a power take-off shaft coupled to the wheel for rotation with the wheel about the wheel axis;

whereby buoyancy of gas in the pockets on the rising side of the wheel is arranged to cause ~~causes~~ rotation of the wheel in the working direction to produce usable power at the power take-off shaft.

2. (original) The engine device according to Claim 1 wherein the pockets are spaced radially outward from the shaft.

3. (original) The engine device according to Claim 1 wherein each pocket tapers radially inwardly towards a leading side thereof.

4. (original) The engine device according to Claim 1 wherein the pockets are collapsible.

5. (original) The engine device according to Claim 1 wherein each pocket

comprises a stiff outer panel coupled to the periphery of the wheel by flexible side members permitting the stiff outer panel to be displaced between an expanded position of the pocket in which the panel is spaced from the periphery of the wheel and a collapsed position of the pocket in which the panel is directly adjacent the periphery of the wheel.

6. (original) The engine device according to Claim 1 wherein the shaft is arranged to extend through a wall of the tank and wherein there is provided a sealing member connected between the wall and the shaft.

7. (original) The engine device according to Claim 1 wherein the tank has an outer wall which is generally cylindrical about the wheel axis, spaced outwardly from the periphery of the wheel.

8. (currently amended) The engine device according to Claim 4 10 wherein the tank is supported for rotation about the wheel axis.

9. (currently amended) The engine device according to Claim 1 wherein ~~the means to introduce gas into the pockets~~ gas introducing mechanism comprises a source of gas under pressure which selectively communicates with each of the pockets.

10. (currently amended) ~~The engine device according to Claim 9~~ An engine device comprising:

a wheel supported for rotation in a working direction about a generally horizontal wheel axis, defining a rising side and a falling side of the wheel as the wheel rotates;

a plurality of pockets at spaced positions about a periphery of the wheel;

a tank surrounding the wheel and arranged for containing a fluid about the wheel;

a gas introducing mechanism arranged to introduce gas into the pockets on the rising side of the wheel;

a gas removal mechanism arranged to remove gas from the pockets on the

falling side of the wheel;

and a power take-off shaft coupled to the wheel for rotation with the wheel about the wheel axis;

whereby buoyancy of gas in the pockets on the rising side of the wheel is arranged to cause rotation of the wheel in the working direction to produce usable power at the power take-off shaft;

wherein the gas introducing mechanism comprises a source of gas under pressure which selectively communicates with each of the pockets; and

wherein there is provided a solenoid valve communicating between each pocket and the source of gas under pressure.

11. (original) The engine device according to Claim 9 wherein the wheel includes a plurality of radially extending tubes communicating between the pockets and the source of gas under pressure at a centre of the wheel.

12. (original) The engine device according to Claim 11 wherein the source of gas under pressure communicates through a shaft of the wheel.

13. (currently amended) The engine device according to Claim 1 wherein the pockets are sealed with respect to fluid in the surrounding tank and wherein the means to introduce gas into the pockets gas introducing mechanism and the means to remove gas from the pockets gas removal mechanism each comprise tubes communicating gas externally from the wheel.

14. (currently amended) ~~The engine device according to Claim 13~~ An engine device comprising:

a wheel supported for rotation in a working direction about a generally horizontal wheel axis, defining a rising side and a falling side of the wheel as the wheel rotates;

a plurality of pockets at spaced positions about a periphery of the wheel;

a tank surrounding the wheel and arranged for containing a fluid about the wheel;

a gas introducing mechanism arranged to introduce gas into the pockets on the rising side of the wheel;

a gas removal mechanism arranged to remove gas from the pockets on the falling side of the wheel;

and a power take-off shaft coupled to the wheel for rotation with the wheel about the wheel axis;

whereby buoyancy of gas in the pockets on the rising side of the wheel is arranged to cause rotation of the wheel in the working direction to produce usable power at the power take-off shaft;

wherein the pockets are sealed with respect to fluid in the surrounding tank and wherein the gas introducing mechanism and the gas removal mechanism each comprise tubes communicating gas externally from the wheel; and

wherein the means to remove gas from the pockets gas removal mechanism further comprises a source of vacuum pressure which selectively communicates with the pockets.

15. (original) The engine device according to Claim 14 wherein there is provided a solenoid valve communicating between each pocket and the source of vacuum pressure.

16. (currently amended) ~~The engine device according to Claim 13~~ An engine device comprising:

a wheel supported for rotation in a working direction about a generally horizontal wheel axis, defining a rising side and a falling side of the wheel as the wheel rotates;

a plurality of pockets at spaced positions about a periphery of the wheel;

a tank surrounding the wheel and arranged for containing a fluid about the wheel;

a gas introducing mechanism arranged to introduce gas into the pockets on the rising side of the wheel;

a gas removal mechanism arranged to remove gas from the pockets on the falling side of the wheel;

and a power take-off shaft coupled to the wheel for rotation with the wheel about the wheel axis;

whereby buoyancy of gas in the pockets on the rising side of the wheel is arranged to cause rotation of the wheel in the working direction to produce usable power at the power take-off shaft;

wherein the pockets are sealed with respect to fluid in the surrounding tank and wherein the gas introducing mechanism and the gas removal mechanism each comprise tubes communicating gas externally from the wheel; and

wherein the means to introduce gas into the pockets gas introducing mechanism includes an inlet bore at one end of the shaft of the wheel communicating with the pockets via selected ones of the tubes and wherein the means to remove gas from the pockets gas removal mechanism includes an outlet bore at an opposing end of the shaft of the wheel communicating with the pockets via selected other ones of the tubes.

17. (currently amended) ~~The engine device according to Claim 1~~ An engine device comprising:

a wheel supported for rotation in a working direction about a generally horizontal wheel axis, defining a rising side and a falling side of the wheel as the wheel rotates;

a plurality of pockets at spaced positions about a periphery of the wheel;

a tank surrounding the wheel and arranged for containing a fluid about the

wheel:

a gas introducing mechanism arranged to introduce gas into the pockets on the rising side of the wheel;

a gas removal mechanism arranged to remove gas from the pockets on the falling side of the wheel;

and a power take-off shaft coupled to the wheel for rotation with the wheel about the wheel axis;

whereby buoyancy of gas in the pockets on the rising side of the wheel is arranged to cause rotation of the wheel in the working direction to produce usable power at the power take-off shaft;

wherein the ~~means to remove gas from the pockets~~ gas removal mechanism comprises an outlet vent in each pocket located at a trailing end thereof.

18. (original) The engine device according to Claim 17 wherein there is provided a gas collector at a top end of the tank for collecting gas released by the pockets into the fluid contained in the tank.

19. (original) The engine device according to Claim 17 wherein the tank is fixed relative to the ground and the wheel is rotatable within the tank.